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A SOLUTION TO THE RACE CONDITION IN THE ICP

In NWG/RFC #143 a race condition in the ICP was described and a solution was suggested. The problem arises because the Host-Host protocol does not specify what the NCP should do when it gets more than one request of STR (or ~~RST~~ RTS) to the same socket. As a result this decision depends on the particular implementation: some may queue these requests (SDC for example), some will refuse a request if the socket is already connected (UCLA for example), etc.

The solution is not to change the Host-Host protocol, but find a third level ICP which does not depend on this issue. Such a solution is the following: the INITs from server to user and user to server ((S5), (S6), (U5), (U6) on page 3 in RFC #143) should use another user socket--say U+2 and U+3. The sequences in RFC #143 would be:

Server	User
(S1) LISTEN(L,32)	(U1) INIT(U,L,32)
(S2) [wait for match]	(U2)
(S3) SEND(L,S)	(U3) RECEIVE(U,S)
(S4) CLOSE(L)	(U4) CLOSE(U)
(S5) INIT(S,U+3,B_u)	(U5) INIT(U+3,S,B_u)
(S6) INIT(S+1,U+2,B_s)	(U6) INIT(U+2,S+1,B_s)

This solution will solve the problems pointed out in RFC #143 without any assumptions made about the NCP implementation. The solution in RFC #143 assumes that the NCP can notify a process when a command (e.g., close) comes in, which is implementation dependent.